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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,522	11/20/2001	Alain Lavie	216200US6	8607

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EXAMINER

KIM, TAE JUN

ART UNIT PAPER NUMBER

3746

DATE MAILED: 04/08/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/988,522		LAVIE ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Ted Kim		3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first fuel orifices and second fuel orifices must be shown or the feature(s) canceled from the claim(s). In the drawings and detailed description, only a single orifice is shown and discussed. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 5-8 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not reasonably provide enablement for the “first feed tube to define an first annular duct” on claim 5, lines 20-23. The specification clearly states that it is the second feed tube that defines the first annular duct. Hence, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

### *Claim Objections*

4. Claims 1-4 are objected to because it is not clear whether applicant's use of the first fuel orifices and second fuel orifices in the claims is intentional [but unillustrated] or inadvertent, when only a single orifice for the primary fuel and a single orifice for the secondary fuel is shown and discussed in the detailed description.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goeddeke (6,351,948) in view of either Sakurai et al (4,216,908) or van Os.(3,972,690). Goeddeke teaches a main fuel injector for a turbomachine [of or for a two-headed combustion chamber has been treated as statement of intended use] having means for delivering a primary fuel comprising a first inner fuel feed tube 90 for a primary fuel passage connected to an annular injection piece having first fuel injection orifice 72 for discharging primary fuel into the combustor, means for delivering a secondary fuel comprising a second feed tube 100 surrounding the first feed tube 90 and connected to a cylindrical endpiece having a second injection orifice 80 for discharging secondary fuel into the combustion chamber. Goeddeke do not teach an annular channel surrounding the

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annular injection piece with a third tube and tubular separation element for delivering a cooling fluid.

Sakurai et al teach a fuel injector having a fuel line 9 and a cooling jacket formed by a third tube (leadline for element 6), a tubular separation element shown immediately adjacent for allowing cooling fluid to flow from an first outer space/duct to the fuel nozzle and return via a second inner space/duct. Sakurai et al further teach the third tube of the cooling jacket has a greater diameter than the feed tubes and extends over its entire length beyond the fuel injection orifices 3. Sakurai et al do not specifically discuss the flow channels/spaces being annular, but making these annular is entirely within the ordinary skill in the art as the annular configuration is the simplest to manufacture and would have radial uniformity of cooling. Similarly, van Os teach a fuel injector having a fuel line 3 and a cooling jacket 7 formed by a third tube, a tubular separation element shown immediately adjacent for allowing cooling fluid to flow from an first outer space/duct to the fuel nozzle and return via a second inner space/duct. Van Os further teach the third tube of the cooling jacket has a greater diameter than the fuel tube 3 and extends over its entire length beyond its fuel injection orifices. Van Os do not specifically discuss the flow channels/spaces being annular, but making these annular is entirely within the ordinary skill in the art as the annular configuration is the simplest to manufacture and would have radial uniformity of cooling. It would have been obvious to one of ordinary skill in the art to employ a third tube around the endpiece of Goeddeke, as taught by either Sakurai et al or van Os. In the event that applicant's usage of

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“orifices” was intentional, it is deemed obvious to one of ordinary skill in the art to use plural orifices for injecting the fuel as opposed to a single orifice.

*Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, 6, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goeddeke (6,351,948) in view of either Sakurai et al (4,216,908) or van Os.(3,972,690), as applied above and further in view of Ansart (5,642,621). Goeddeke et al teach various aspects of the claimed invention but do not particularly show a two headed combustion chamber. Ansart shows that using fuel injectors for a two headed 20, 21 combustion chamber P is entirely old and well known in the art. It would have been obvious to one of ordinary skill in the art to employ the injector with a two headed combustion chamber, as a conventional combustor geometry.

*Allowable Subject Matter*

9. Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

*Contact Information*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 703-308-2631. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

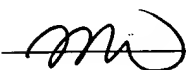
The fax numbers for the organization where this application is assigned are 703-872-9302 for Regular faxes and 703-872-9303 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached on 703-308-0102.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861.

General inquiries can also be directed to Technology Center Customer Service Office at 703-306-5648 or the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at

<http://www.uspto.gov/main/patents.htm>

  
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